

### REMARKS

By the present Amendment, claims 1-10 are cancelled and claims 11-24 are added. This leaves claims 11-24 pending in the application, with claims 11 and 19 being independent.

The subject matter of this application is related to that of co-pending U.S. Patent Application No. 10/546,609.

#### Substitute Specification

The specification is revised to avoid the objections in the Office Action and to eliminate grammatical and idiomatic errors in the originally presented specification. The number and nature of the changes made in the specification would render it difficult to consider the case and to arrange the papers for printing or copying. Thus, the substitute specification will facilitate processing of the application. The substitute specification includes no "new matter". Pursuant to M.P.E.P. § 608.01(q), voluntarily filed, substitute specifications under these circumstances should normally be accepted. A marked-up copy of the original specification is appended hereto.

Relative to the objection, the reference to claim 1 in the description portion of the specification is deleted.

#### Rejections Under 35 U.S.C. § 102 and § 103

New independent claim 11 combines the limitation of original claims 1, 5 and 6 to constitute original claim 6 rewritten in independent form. New independent claim 19 combines the limitations of original claims 1, 5, 7 and 8 to constitute original claim 8 rewritten in independent form. Since original claims 6 and 8 are indicated as being allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims,

claims 11 and 19, and the claims dependent thereon should now be allowable. Accordingly, the record will not be burdened with a detailed comparison of the pending claims and the cited patents.

In view of the foregoing, claims 11-24 are allowable. Prompt and favorable action is solicited.

Respectfully submitted,



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~~Production Device~~

~~The invention relates to a production device for execution 47800~~

Patent Application

of

BERND HANSEN

for

PRODUCTION DEVICE

Field of the Present Invention

The present invention relates to a production device for performing a blow molding, charging, and sealing process for plastic containers, including at least a molding device of the a first type into which at least one tube of plasticized plastic material may be introduced.

Background of the Invention

Generic processes and devices for production of plastic containers are known in the state of the art (e.g., DE 199 26 329 A1), ~~ones in which a~~. A tube of plasticized plastic material is extruded into a molding device, ~~with~~ one end of the tube is sealed by bonding ~~and this~~. This tube is expanded by generation of a pneumatic pressure gradient which acts on the tube and is applied for the purpose of formation of the container to the molding wall of the molding device ~~consisting of having~~ two opposite molding tools. The plastic container is charged under sterile conditions inside the molding device, ~~by way of a suitable charging mandrel, and, after~~. After the charging mandrel has been removed, the plastic container is then hermetically sealed and a predetermined head geometry is formed, ~~with~~ by two container shaping jaws ~~which may be moved movable~~ toward each other by hydraulic drive means to ~~obtain a closed position and away from each other over the same path in the opposite direction to their an open position for~~ formation of the plastic container itself for subsequent storage of the fluid.

The head geometries ~~to be generated by means of the two controlled head jaws also~~ regularly comprise the neck component of the plastic container, including ~~that in the form of ampules, which~~. The containers may be opened by ~~way of a point of separation closed by a head piece for a fluid removal process as soon as the head piece is separated by way of a toggle component by way of at the point of separation and thus~~. Thus, the headpiece is removed from the plastic container itself.

Processes such as these have been disclosed in a number of embodiments, and are widely employed in packaging systems for liquid or paste products.

The hydraulic drive systems regularly used in practical applications for the respective movement of ~~delivery of the shaping tool tools~~ create problems in that any leakage may result in fouling by the stored fluid, ~~something which~~. Such fouling leads to problems ~~in particular, particularly~~ when the shaping machines are used for plastic containers in pharmaceutical

applications and in the area of foods and in medical technology in general. The maintenance effort is also increased and the ~~The~~ hydraulic drive systems often do not reach the cycle times desired or low cycle times work to the detriment of precise positioning of the shaping tools for container shaping, in ~~In~~ the case of the known production devices, the blow molding, charging, and sealing process are carried out stationarily in temporal sequence in one production machine, so that correspondingly long production times are required for the entire production process.

~~So-called~~ Conventional rotation plastic blow molding machines (see e.g., EP-B-0 921 932, and EP-B-0 858 878) which customarily have a wheel mounted on a base frame for rotation about a horizontal axis of rotation ~~are known in the state of the art; they~~ They are employed in order to overcome the disadvantage indicated, and in particular, to achieve faster cycle times in production of plastic containers. The wheel ~~in question~~ contains a frame which supports several molding stations, each ~~of which has~~ station having a pair of mold frames for mounting of a pair on molding halves. The mold frames may be moved between a mold opening point at which the mold halves are positioned a certain distance from each other ~~in order to~~ receive an extruded plastic parison and a mold closing position in which the mold halves form a closed cavity in which the parison is blow molded. However, the blow-molded containers can neither be charged nor sealed ~~to be in a sterile manner by means of~~ these rotation plastic blow molding machines of the state of the art, ~~and accordingly are~~ Accordingly, they are suitable only for production of empty containers which are provided at another site with a beverage content or the like outside the rotation molding machine, and are also provided with a suitable seal such as a screw-type cap.

~~On the basis of this state of the art the~~ Summary of the Invention

An object of the present invention is to create a production device for ~~execution performing~~ of a blow molding, charging, and sealing process for plastic containers, ~~a device which permits~~ permitting application of modern drive concepts, for example, in the form

of electric or pneumatic drives ~~the maintenance effort of which~~. Maintenance of those drives is reduced and, in particular, permits high rates of output of the goods to be produced, such as plastic containers.—An

This object as indicated in the foregoing is attained with a production device having the characteristics specified in patent claim 1 in its entirety.

In that, as is specified in the characterizing part of claim 1, the respective a molding device of the a first type may be pivoted rotatable about an axis to individual spatially separate stations ~~and in that at~~. At least one station serves the purpose of blow molding and at. At least one station that of charging charges and sealing seals the container blow-molded in container. In this manner, it is possible at least simultaneously to blow-mold a tube of plasticized plastic material for production of the plastic container and to charge a container of this type already produced in this manner at the other station with the medium, ~~in particular one particularly~~ in the form of a fluid, and to seal this container. The output rates may be more or less at least doubled in the case of the respective assembly from the rate obtained with the known production devices for ~~execution of a~~ blow molding, charging, and sealing process, since now it is no longer necessary to carry out all individual processes such as blow molding, charging, and sealing at only one station within the known production device ~~in order to obtain a plastic container~~. By creating the individual production and processing station ~~it also becomes possible to apply stations~~, modern drive concepts and can be used to control the individual molding devices by ~~means of electric stepped drives so that fouling by a hydraulic medium or the like is avoided.~~

In that the individual production steps are divided among different stations, the safety and accuracy of processing is also improved in comparison to the known single-station production process, in which all production steps are carried out sequentially in one place (at one station) rather than simultaneously as in the case of the device claimed for the present invention.

In one preferred embodiment of the production device ~~claimed for the~~ of the present invention, the respective tube of plasticized plastic material may be introduced into the molding device of the first type; ~~at a.~~ A second station following in the direction of ~~pivoting~~ rotation, this extruded tube ~~consisting~~ formed of plasticized plastic material may be subjected to blow molding to produce the container, ~~it being possible to charge the.~~ The blow-molded container can be charged and sealed under sterile conditions at a following third station ~~and for removal.~~ Removal from the mold of the respective blow-molded container charged and sealed under sterile conditions ~~to~~ can be carried out at a following fourth station. In this way, the entire production process for plastic containers is divided among four different stations, the production steps assigned to them being performed simultaneously at these stations. This arrangement results in very high cycling and rates of output of plastic products, even ones in the form of ampules, charged and sealed under sterile conditions.

In another preferred embodiment of the production device ~~claimed for the~~ of the present invention the four stations are spaced ~~radially~~ circumferentially at an angle of 90° from each other in the direction of ~~pivoting~~, ~~it being possible to pivot~~ rotation four molding devices of the first type can rotate in sequence to the respective stations. Consequently, the production stations are spaced at uniform ~~radial~~ arc distance over the circumference of the production device, so that only extremely short production pauses occur when the molding device of the first type is ~~pivoted~~ rotated to the next production station. Provision preferably is made such that the respective molding device of the first type may be ~~pivoted~~ rotated about a vertical axis and such that the respective station is mounted so as to be stationary.

In another, especially preferred, embodiment of the production process ~~claimed for the~~ of the present invention, ~~there exists~~ in addition to the molding device of the first type, another molding device of the ~~a~~ second type serving the purpose of ~~is provided for~~ sterile sealing of the

respective plastic container on its open neck and head side by ~~way of~~ which the respective container may be charged with the fluid under sterile conditions. The molding device of the first type preferably is mounted below the molding device of the second type ~~and the~~ The associated molding tools of the first and the second molding ~~device~~ devices form a common longitudinal axis ~~which corresponds~~ corresponding to the longitudinal axis of the container. In this way, the molding device of the first type is ~~pivoted~~ rotated as a whole with the molding device of the second type on the circumference of the associated molding tools (head jaws) ~~something that~~. This arrangement keeps the pivoting and rotating masses low, so that not only may the production process be carried out safely with reduced centrifugal forces, but ~~also~~ the drive power for the ~~pivoting~~ rotation of the respective molding device is correspondingly reduced, this lowering both the production costs and the operating costs involved in use of the production device.

In another preferred embodiment of the production device ~~claimed for the~~ of the present invention, the respective molding device may be activated for moving at least one molding tool by ~~means of~~ a link control which moves the respective molding tool to a sealing position at least for sealing the mold, ~~it being possible to actuate the~~. The link control can be actuated by a drive, preferably in the form of the electric stepping motor. This arrangement permits uniform, safe, and position-accurate driving of the respective molding tool, and requires only minor maintenance efforts. In addition, a plurality of opening and closing processes may be carried out in quick succession by the link control, ~~this also favoring~~ a high output of the goods to be produced.

It has been found to be especially advantageous for the production process ~~to make~~ provision such that for the respective drive for the respective molding device of the first kind ~~is to~~ be stationary at least at part of the stations, ~~it being possible to couple this~~. This molding device can be coupled to the drive shaft of the drive by ~~way of~~ a coupling point. ~~In the solution in~~



~~question the~~ The drive is coupled to the molding device ~~referred to only if this coupling is~~ necessary for an opening or closing process with the molding tools and, in particular during ~~pivoting~~ rotation of the molding device to and from a station, ~~the~~. The associated drive is not to be driven along with the molding device; ~~this~~. This arrangement reduces the forces of inertia and accordingly the centrifugal forces, and yields the advantages indicated in the foregoing.

~~Provision preferably is made such that~~ Preferably, the drive shaft for the first molding device is mounted perpendicularly to its ~~pivot~~ rotational axis, ~~the~~. The other drive shaft of the other drive for the molding device of the second type ~~extending~~ extends in parallel with this ~~pivot~~ rotational axis ~~and this~~. This other drive ~~being~~ is mounted at the third production station so as to be stationary, the function of this station being charging and sterile sealing of the container. In this way, the molding device of the second type designed for an opening and closing process with its molding tools may be readily controlled, since, because of the different drive shafts, the associated drive systems with their different drives are situated on different planes inside the production device. At the third production station, the molding tools of the molding device of the second type are ~~pivoted~~ rotated in together with the molding device of the first type ~~and, after~~. After the other drive has been actuated, the molding tools of the molding device of the second type may be moved to the sealing position after the container has been charged, sterile sealing of the contents of the container being carried out, along with shaping of the head component in this sealing position.

In another preferred embodiment of the production device ~~claimed for the~~ of the present invention, a laminar flow unit or a sterile barrier unit is present between the individual stations, ~~a~~. A unit which covers the free openings of the molding device of the first type and accordingly the respective container openings in advance of sterile sealing of the container. This unit makes certain that fouling particles will be prevented from entering the container opening with the fluid during the production process.

~~The production device claimed for the invention will now be described in greater detail below with the aid of exemplary embodiments illustrated in the drawings in which in diagrammatic form and not drawn to scale.~~ Other objects, advantages and salient features of the present invention will become apparent from the following detailed description, which, taken in conjunction with the annexed drawings, discloses a preferred embodiment of the present invention.

~~FIG. 1~~ ——— ~~shows a top view of the production device as a whole;~~

#### Brief Description of the Drawings

Referring to the drawings which form a part of this disclosure:

FIG. 1 is a top plan view of a production device according to an embodiment of the present invention;

~~FIG. 2~~ ——— ~~shows is~~ a side elevation view of the production device in the direction of the arrow X in FIG. 1 ~~as viewed~~ without the discharge station;

~~FIG. 3~~ ——— ~~shows is~~ a top plan view of the molding device of the first type (described in detail in DE-A-103 17 711.6); and

~~FIG. 4~~ ——— ~~shows is~~ a top plan view of a part of the molding device of the second type (described in detail in DE-A-103 17 712.4).

#### Detailed Description of the Invention

FIG. 1 shows a top view of the production device for execution of a blow molding, charging, and sealing process for plastic containers, including ampules, with molding devices 10. Tubes of a plasticized plastic material ~~which may be produced by an extruder assembly designated as a whole as 12~~ may be introduced into the respective molding device 10. ~~For this purpose granulated~~ Granulated plastic is melted along a heated extruder section 14 and introduced by ~~way of a discharge assembly 16~~ into the respective molding tools of the molding device 10 of the first type, if the tools are in their opened position for reception of the respective extrusion tube. Consequently, ten extrusion tubes in a row, for example, may be received by molding device 10 of the first type. The respective molding device 10 may be pivoted or rotated in a horizontal plane about a vertically extending pivot or rotation axis 20 of the production device. In addition, the production device has four spatially separated stations 22, 24, 26, and 28, the first station 22 ~~being available to receive~~ receiving the extrusion tubes as ~~has been explained in the foregoing~~. The second station 24 performs the function of blow molding of extrusion tubes positioned side by side in a row by ~~means of a blow molding assembly 30~~, which presses the individual plastic tubes by ~~means of blast air~~ against the mold walls of the molding tools of the molding device 10 of the first type ~~in order to form containers~~. The ~~respective blowing process~~ may be supported by a vacuum, supporting air, or the like in the molding device of the first type. The next station 26 in the ~~pivot~~ rotational direction performs the function of sterile charging of the plastic containers produced at the station 24, ~~the~~. The ends of the containers being are sealed after charging at the station 26. For this purpose, the drive unit of a molding device 32 of the second type is used at the station 26 ~~and the~~. The charging assembly 34 is mounted above the molding device 32 as shown facing the viewer in FIG. 1. The next station 28 following in the pivot direction performs the function of removal ~~of from the molds from of~~ the blow-molded, charged, and sealed plastic containers, ~~the~~. The containers when removed from the molding device 10 are pushed onto pallet lines 36, especially into packaging (not shown), for subsequent shipping.

As FIG. 1 also shows, the four stations 22, 24, 26, and 28 are spaced radially arcuately or circumferentially in sequence at an angle of 90° from each other in the pivot or rotational direction of the molding device 10 of the first type, inside the production device, ~~it being possible to pivot.~~ The four molding devices 10 of the first type together with the molding tools of the molding device of the second type can be rotated in sequence into the respective stations 22, 24, 26, and 28. The production device shown in FIG. 1 may accordingly be used to carry out simultaneously all four different production operations, such as receipt of extrusion tubes, blow molding, charging and sealing, and mold removal; ~~this.~~ This arrangement appreciably increases the cycle and output rate of plastic to be produced in relation to comparable production devices in the state of the art which perform the treatment processes referred to sequentially at one station.

The respective molding device 10 of the first type is mounted so as to be pivotable or rotatable counterclockwise about the vertical axis 20 ~~and the~~. The respective stations 22, 24, 26, and 28 are positioned inside the production device so as to be stationary.

The configuration of the molding device 10 of the first type ~~is to be seen shown~~ in the top view ~~shown in of~~ FIG. 3. The respective molding device is also described in detail in DE-A-103 17 711.6 issued to the applicant, so that only the basic structure of the molding device will be specified here. The molding device 10 as a whole performs the function of moving molding tools 40, 40a ~~and on~~. On its free frontal surface, the respective molding tool 40, 40a has trough-shaped recesses (not shown) which consequently form mold halves for generation of container geometries for plastic containers not shown, including ones in the form of ampules. The two molding tools 40, 40a work together to generate the respective container geometries; ~~as is to be.~~ As seen in FIG. 3, the two molding tools 40, 40a are in the closed, molding, position in which the free frontal surfaces of the molding tools come together along a closing separating line.

The function of moving the respective molding tool 40, 40a is performed as a whole by a link control component ~~designated as a whole as~~ 42 and actuated by a centrally mounted drive 44, ~~only the~~. The splined shaft 46 of the drive 44 ~~being is~~ shown in FIG. 3 for the sake of simplicity. The respective splined shaft 46 may be coupled by ~~way of~~ a coupling piece (not shown) such as a claw coupling to the driven shaft of an electric motor, for example, one in the form of an electric stepping motor which thus permits actuation of the link control component 42, ~~the~~. The drive shaft of the molding device 10 ~~pivoting pivots or rotates~~ on a common axis with the driven shaft of the drive 44 ~~and the~~. The drive torque for the molding tools 40, 40a then ~~being is~~ transmitted by ~~way of~~ the coupling. As is shown in FIG. 2, such a drive 44 is positioned centrally at least at the station 28, and at the station 22, for the purpose of opening the molding device to ensure execution of the process of removal from the mold and subsequent closing of the mold ~~in order~~ to permit seating of the respective extrusion tube formed by the extruder assembly 12 with its discharge assembly 16 and subsequently closing of the mold.

The link control component 42 has a slot guiding device 48 ~~which is~~ positioned on the external circumference side on a rotational element 50 which may be driven by the splined shaft 46. An actuating component 52 which operates in conjunction with a slot component 54 is engaged in the slot guiding device 48; ~~when~~. When the slot guidance device 48 rotates from one of its end areas to its other end area and in the opposite direction, the associated slot component 54 ~~which may be associated~~ may be moved with the molding tool 40, 40a by ~~way of~~ the thus longitudinally movable actuating component 52 from a closed position along closing line I - I into an open position (not shown) of the mold form by the respective molding tool 40, 40a and vice versa. Consequently, the molding tools 40, 40a may be moved in pairs simultaneously opposite a link control component 42 by ~~way of~~ the common drive components by drive 44 at the station provided for this purpose, so that four link control components in pairs opposite each other are actuated by a common operating shaft 56.

The drive unit of the molding device 32 of the second type is mounted at station 26 for each molding device 10 of the first type to be pivoted or rotated in-and, coming from the station 24, as. ~~As seen in the line of sight to FIG. 2,~~ the drive unit of the molding device 32 is mounted so as to be stationary-and the. The respective molding device 10 of the first type may be pivoted or rotated below the drive unit of the molding device 32 of the second type into the station 26 by ~~means of a central rotary drive (not shown), along the pivot~~ about the pivot or rotational axis 20 radially in a common horizontal plane 18. The molding tools 60 of the molding device 32 of the second type are moved along from the molding device 10 of the first type in the respective pivot or rotational movement. The respective molding device 32 of the second type is illustrated in detail at least in part in FIG. 4, and is also ~~fully described in DE-A-103 17~~ A-103 17 712.4, so that only the basic aspects of this molding device will be discussed at this point.

The molding device 32 of the second type shown in FIG. 4 performs the function of moving molding tools 60 having trough-like recesses 62 on their front side which thus form mold halves for generation of head geometries for plastic containers not shown. To generate the head geometries in question, the respective molding tool 60 operates in conjunction with a corresponding molding tool with correspondingly configured recesses (not shown), the configuration shown in FIG. 4 is replicated correspondingly on the other side of the closing separating line I - I (not shown). The molding device 32 has for the purpose of moving the molding tool 60, a second link control component ~~designated as a whole as 64 as a drive unit by way of which the respective molding tool 60 may be actuated to close the mold along the closing line I - I, it being possible to actuate the.~~ The other link control component 64 can be actuated in turn by another drive 66, preferably in the form of an electric motor, for example, in the form of an electric stepping motor. For this purpose, the other link control component 64 has a slot guide in a feed component 70 which is engaged by an actuating member 72 ~~which may be moved~~ movable into a position corresponding to the open and closed position I - I of the molding tool 60 by a rotary part 74 ~~which may be actuated by the other drive 66.~~ In this instance as well,

the molding tools 60 opposite each other forming a pair in turn may be moved synchronously by a link control component 64 into their closed position, ~~two~~. Two electric drives 66 opposite the closing separating line ~~actuating~~ actuate two link control components 64 opposite each other forming a pair to move the molding tools 60.

As a result of superposition of the two molding devices 10 and 32 at the station 26, the latter with its molding tools 10, 60 form a common longitudinal axis which corresponds to the longitudinal axis of the container, ~~the~~. The drive unit 64, 66 of the molding device 32 ~~remaining~~ remains at the station 26, while the molding tools 60 of the device 32 are brought to the station 26 with the respective molding device 10, ~~at which~~. At that station, the drive unit 64, 66 moves the molding tools 60 to the sealing position, ~~and the~~. The molding device 10 at the station 26, as viewed in ~~the line of sight to FIG. 2~~ remaining, remains below the molding device 32.

Consequently, in the configuration ~~in question~~, the drive shaft for the first molding device 10 is mounted so as to extend perpendicularly to its pivot axis 20, while the other drive shaft of the other drive 66 for the molding device 32 of the second type extends in parallel with this pivot axis 20. In addition, the other drive 66 is mounted on the second molding device 32 so as to be stationary. In addition, there is positioned between the individual stations 22, 24, 26, and 28, a laminar flow unit or sterile barrier (not shown) which covers the free openings of the molding device 10 of the first type and accordingly the respective container opening in advance of its sterile sealing.

Use of the production device ~~claimed for the~~ of the present invention and distribution of different molding steps among different stations creates a sort of carrousel configuration ~~which permits~~, permitting very high cycle frequencies for output of the plastic material in the form of containers. The hygienic requirements are to a great extent satisfied by the use of electric drives ~~and in~~. In particular, the production device itself with its stations is hermetically sealed off from

the extruder assembly which separates the plasticized plastic material, so that clean room conditions may be created for the blow molding, charging, and sterile sealing process itself, should this be desired by the user.



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Claims

~~A production device for execution of a blow molding, charging, and sealing process for plastic containers including at least a molding device (10) of the first type into which at least one tube of plasticized plastic material may be introduced, characterized in that the respective molding device (10) of the first type may be pivoted about an axis (20) to individual spatially separated stations (22, 24, 26, 28) and in that at least one~~ While one embodiment has been chosen to illustrate the invention, it will be understood by those skilled in the art that various changes and modifications can be made therein without departing from the scope of the invention as defined in the appended claims.

What is claimed is:

PRODUCTION DEVICEAbstract of the Disclosure

1. A production device for performing a blow molding, charging, and sealing process for plastic containers has a first type of molding device (10) into which a tube of plasticized plastic material may be introduced. The molding device (10) of the first type may be rotated to individual spatially separate stations (22, 24, 26) about an axis (20). One station (24) performs the function of blow molding of the container and another. Another station (26) charges and seals the function of charging and sealing the blow molded container as thus. Simultaneously a tube of plasticized plastic material can be blow molded:
2. The for production device as claimed in claim 1, wherein at a first station (22) the respective tube of plasticized plastic material may be introduced into the molding device (10) of the first type, wherein this tube may be subjected to blow molding at a second station (24) following in the direction of pivot in order to produce the plastic container, wherein the blow molded container is charged and may be sealed under sterile conditions at a third station (26) following in the direction of pivot, and wherein the process of removal of the mold from the respective container which has been blow molded, charged, and sealed under sterile conditions at a fourth station (28) following in the direction of pivot.
3. The production device as claimed in claim 2, wherein the four stations (22, 24, 26, 28) are spaced from each other at a radial distance of 90° in the direction of pivot of the molding device (10) and wherein four molding devices (10) of the first type may be pivoted in sequence to the respective stations (22, 24, 25, 28).

4. ~~The production device as claimed in one of claims 1 to 3, wherein the respective molding device (10) of the first type may be pivoted about a vertical axis (20) and wherein the respective stations (22, 24, 26, 28) are mounted so as to be stationary.~~
5. ~~The production device as claimed in one of claims 1 to 4, wherein there is present in addition to the molding device (10) of the first type another one (32) of the second type which performs the function of sterile sealing of the respective plastic container on its open neck and head side by way of which molding device (10) the respective container may be charged with the fluid under sterile conditions.~~
6. ~~The production device as claimed in claim 5, wherein the molding device (10) of the first type may be pivoted to a position below the drive unit (64, 66) of the molding device (32) of the second type mounted so as to be stationary and wherein the associated molding tools (10, 60) of the first and the second molding device (10, 32) form a common longitudinal axis.~~
7. ~~The production device as claimed in claim 5 or 6, wherein the respective molding device (10, 32) may be actuated for moving at least one molding tool (40, 40a, 60) by means of a link control component (42, 64) which moves the respective molding tool (40, 40a, 60) into a sealing position (I—I) at least for sealing of the mold and wherein the link control component (42, 60) may be operated by a drive (44, 66), preferably one in the form of an electric stepping motor.~~
8. ~~The production device as claimed in claim 7, wherein the respective drive (44) for the respective molding device (10) of the first type is mounted so as to be stationary at least on a part of the stations (22, 28) and wherein this molding device (10) may be coupled by way of a coupling point to the driven shaft of the drive (44).~~

9. ~~The production device as claimed in claim 8, wherein the drive shaft (46) for the first molding device (10) extends perpendicularly to its pivot axis (20), wherein the other drive shaft of the other drive (66) for the molding device (32) of the second type extends in parallel with this pivot axis (20), and wherein the other drive (66) is mounted on the second molding device (32) so as to be stationary.~~
10. ~~The production device as claimed in one of claims 1 to 9, wherein a laminar flow unit or a sterile barrier is present between the individual stations (22, 24, 26), which laminar flow unit or sterile barrier covers the free openings of the molding device (10) of the first type and accordingly the respective container opening before such opening undergoes sealing under sterile conditions.~~

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Abstract

1. ~~Production device.~~

2. ~~The invention relates to a production device for execution of a blow molding, charging, and sealing process for plastic containers having at least one first type of molding device (10) into which at least one tube of plasticized plastic material may be introduced. In that the respective molding device (10) of the first type may be pivoted to individual spatially separate stations (22, 24, 26) about an axis (20), and in that at least one station (24) performs the function of blow molding of the container and another station (26) that of charging and sealing the container thus blow molded, it is possible at least simultaneously to blow mold a tube of plasticized plastic material for production of the plastic container and to charge a corresponding container produced in this manner at the other station with the medium, in particular one in the form of a fluid, and to seal it. The cycle times may accordingly be reduced in comparison to such cycle times of production devices of the state of the art and so the rates of output of charged containers sealed under sterile condition to be produced may be significantly increased.~~

3. ~~FIG. 1.~~

particular one in the form of a fluid, and to seal it. The cycle times may be reduced in comparison to cycle times of production devices of the state of the art so that the rates of output of charged containers sealed under sterile conditions to be produced may be significantly increased.